

**REMARKS FOR DEPUTY ADMINISTRATOR LORI GARVER**  
**6<sup>TH</sup> ANNUAL ILAN RAMON INTERNATIONAL SPACE CONFERENCE**  
**Jan. 30, 2011**

[BEGIN PRESENTATION]

Thank you, President Peres and Minister Hershkowitz, and thank all of you for including NASA in this event. It's a pleasure and honor to represent NASA, visit our friends in Israel (and make new ones), and to take part in this celebration of the memory of Ilan Ramon and his son Asaf. Their heroism lives in us all. Rona, it is a privilege to know you and to honor your family.

The important research that Ilan Ramon and the crew conducted on the STS-107 mission continues, including Earth observation, biological research and zero g combustion physics. I want to bring you up to date on this important work as well as the current status in NASA.

As we proceed toward the final space shuttle missions and our new exciting exploration agenda, the memories of those crews who lost their lives in the pursuit of exploration will be forefront in our memories as we carry them in our hearts.

[ADVANCE SLIDES]



The astronauts from many countries who have flown on the shuttle and visited the International Space Station are one of the strongest legacies of the program. Ilan Ramon and his colleagues helped forge the model of cooperation that will serve as the basis for moving, as one people, beyond our planet and farther out into the solar system.

U.S. President Barak Obama has expressed his vision and optimism about the space program. He has challenged NASA to be innovative and to work across borders to harness the energies and talents around the world. The U.S. National Space Policy developed last year focuses on re-invigorating research and development and creating new capabilities that will benefit humankind. It also calls on us to build on already existing strong partnerships and look at new ways to develop relationships.

[ADVANCE SLIDES]



It has been a challenging time. Transitions can be difficult. As we prepare for the final flights of the space shuttle and begin to pursue the new direction we have been given, we have received support across the political spectrum in the U.S. (which is not too easy or common these days) for a wide ranging portfolio of missions to explore the solar system and the cosmos; to take advantage of unique capabilities the International Space Station; to build a strong commercial capability for access to low Earth orbit and to develop the technologies to enable expanded human exploration.

NASA is just days away from releasing its FY2012 budget. The challenges of aligning a budget to national priorities certainly something we all share across borders! We are pleased, however, that the space program has wide and deep support, and we have critical generational goals that we are not pursuing. . They will lead to new opportunities for the economy, new knowledge and capabilities as we reach for the stars.

[ADVANCE SLIDES]



This will put us on a course to where we hope to discuss common challenges with Minister Hershkowitz and Jean Jacques Dordian about where to be in a generation, not just the next launch or the next year or the next political cycle. Toward that end, we have begun studying the options for a heavy lift rocket space launch system that will be capable of supporting the next wave of missions beyond low Earth orbit. We are also continuing to build on the investment we have already made in a multi-purpose crew vehicle and are working to determine how that will fit in with the heavy lift rocket to carry humans to an array of new destinations we want to visit.

At the same time, we will direct resources to opening up a commercial space sector. This will enable us to routinely carry both cargo and humans to orbit and support the

economy by enabling safe, reliable and cost effective U.S.-provided commercial access to low earth orbit for crew and cargo as soon as possible.

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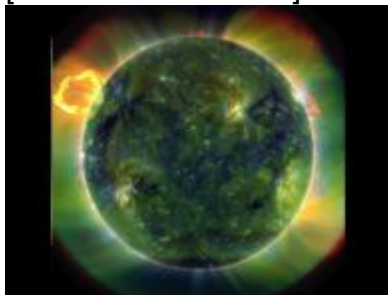


It was exciting when SpaceX launched the Dragon crew aboard its Falcon 9 rocket and successfully retrieved the capsule after re-entry. This was the first time a commercial entity had achieved this feat. Our other partner in the Commercial Orbital Transportation System, Orbital Sciences, has also successfully tested the engines of their Taurus II rocket and are on track to make upcoming milestones as they too seek to send cargo and humans to orbit.

The Commercial Crew Development program will be expanded under this scenario, enabling other companies to work on their space transportation systems and the many related businesses that we are confident will spark an entirely new segment of the economic and space development to be a job-creating engine for decades to come.

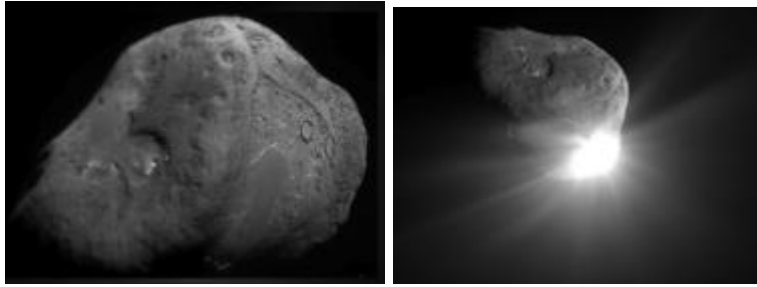
We are also proud of the literally dozens of science missions in the works and currently on orbit. These missions are meeting the science community's and world priorities, leveraging robotic missions to explore the solar system, supporting space-based observatories, and studying the Earth and monitoring climate change.

[ADVANCE SLIDES]



Heliophysics missions are keeping an eye on the sun. Just look at some of these spectacular pictures from the Solar Dynamics Observatory, launched this past year, show us incredible detail about our life-giving neighbor and the effects its sometimes unpredictable nature can have on the Earth.

[ADVANCE SLIDES]



There are quite a lot of amazing things coming up in the near future. On Feb. 14, we have encounter with Comet Tempel 1 with the Stardust spacecraft. This encounter will provide more insight about how this comet and others like it formed around 4.6 billion years ago. We are getting solid evidence, from the fossil keepers of the solar system, (comets) about how our solar system formed and evolved.

[ADVANCE SLIDES]



On Feb. 23, we will launch the Glory mission from the West Coast, in California to gain a better understanding of Earth's climate system. The very next day -- the next space shuttle mission is scheduled to launch from the Kennedy Space Center in Florida, with its first robotic crew member, Robonaut, or R-2, as we call it. Robonaut will teach us about robot human interaction and will become an integral part of the station.

In March, Messenger becomes our first satellite to orbit Mercury. Later this year, we'll launch the Mars Science Laboratory, also known as the Curiosity rover. It will land on the Red Planet's surface in August 2012. It's two times as large and three times as heavy as previous rovers, about the size of a small car – and will help us learn about whether or not life might have been possible previously, or is still possible on Mars.

Space, like parenting, takes planning and patience. The Dawn mission reaches the asteroid Vesta in July out there in the Main Asteroid Belt on its way to the dwarf planet Ceres. As far as Pluto, New Horizons, launched several years ago, will reach it in 2015

and I'm sure it will be making headlines again and the whole discussion about dwarf planets will re-ignite. Juno launches for Jupiter in August to study the gas giant's atmosphere, magnetic field and other proprieties.

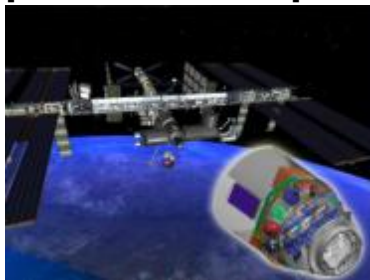
The Kepler mission continues to send back huge amounts of data about the frequency planets outside our solar system, and it may be only a matter of time before we know if an Earth-like planet exists in its sun's habitable zone.

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We are proud of these accomplishments and, at the same time, are looking toward the future.

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NASA's goals for the future focus on what we want to achieve technically and operationally, to advance and benefit humankind.

NASA has always been forward looking. The 2012 Budget continues our vital work to push the boundaries of our achievements, but ensures that we do it in an affordable, sustainable way with real value for the American taxpayer and with ever-deepening partnerships with US industry and other nations that help us achieve on a global scale.



So we are setting out to develop and refine the technologies that will be required to reach an array of destinations, with an ever-increasing level of difficulty and to reveal the unknown from near Earth objects to Mars. The newly established Office of the Chief Technologist is tasked with developing cross-cutting technologies that needed to enhance NASA's capabilities for the future to address the grand challenges that remain today.

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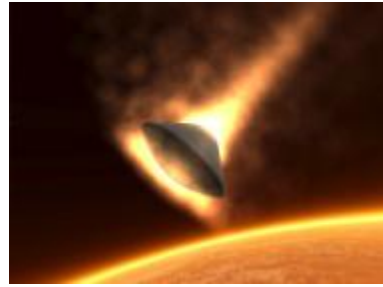
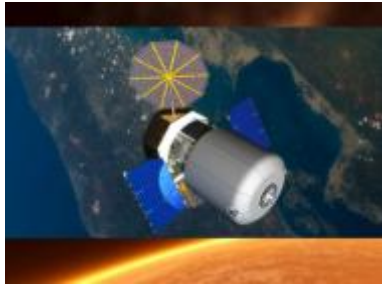
We envision a deep space rocket with multiple users that could include other government agencies as well as international space programs. We learned a great deal about this in the Space Shuttle Program as well as the Constellation Program. This information will lead to decisions about the path to pursue into the universe.

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Recognizing the importance of education to help ensure generational continuity, we have established NASA-sponsored fellowships for graduate students to enable them to make technological contributions at this stage in their career. These are our future technologists and engineers, who are going to be getting in on the ground floor in areas such as in-space propulsion systems, inflatable habitats, in-orbit refueling depots, aerocapture, descent technology and many other advances that we've known for a long time we need to harness if we are truly going to become a space faring civilization.

[ADVANCE SLIDES]



Recently NASA released an Integrated Draft Space Technology Roadmap late last year outlining 14 space technology areas of high priority. This integrated roadmap establishes a foundation and a mechanism for prioritizing the agency's future investments in technology and innovation. Just this week, the chief technologist is working collaboratively with the National Research Council to review and refine the document. Once NASA receives the final inputs from the Council, we will begin to use the roadmaps to drive future technology solicitations that meet near and long-term requirements of the agency's mission directorates. I will reach out to the international community about this effort.

Operationally, we're beginning to take a hard look at our processes and find ways to explore more innovative procurement and development approaches. We've initiated several industry study contracts regarding heavy-lift and propulsion to help us challenge or validate our thinking. We're looking at ways to streamline our contractor oversight, phase work to meet spending targets and adopt incremental methods of achieving capabilities and efficiencies. The bottom line is that, in partnership with industry, we intend develop and build systems that break free of Earth's orbit and travel sometimes millions of miles into space. We can and must find better ways to do this. This is consistent with President Obama's statements in the State of the Union to find more "Sputnik Moments".

[ADVANCE SLIDES]



Some examples include working on upgrading our launch facilities at the Kennedy Space Center and focusing on becoming more responsive to a wider range of potential customers by using the many things we learned about processing from the space shuttle and other payloads. We are working to create a world-class facility for launching future missions.

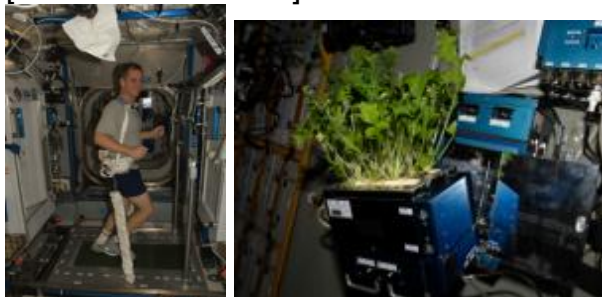
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NASA has secured partnerships with other U.S. government agencies and private firms to utilize a portion of the ISS as a National Laboratory. We will continue to expand this work in 2012 and enhance the station's capabilities as we work to achieve its full potential over the coming decade. A non-profit organization is being set up to evaluate ways of getting more types of organizations involved and taking advantage of the unprecedented resource that the orbiting outpost represents. This will also answer some reporter's questions about whether we have really gotten any value from the ISS.

Ultimately, no matter how many of us innately love space, we have to justify its benefits. Only a few will get to float through the station's cupola and view our blue planet from space. Giving the rest of us access to space and its many wonderful benefits is our ongoing quest.

[ADVANCE SLIDES]



Now that the station has been given 10 more years of life, our research on it in areas relating to human health for long duration space flight will grow exponentially and will find many applications Earth-side. Already we've learned about pathogens such as Salmonella and produced research that has led to candidate vaccines.

. Studies improve our understanding of how technologies work on Earth and in space. Astronaut TJ Creamer, shown jogging on the Combined Operational Load-Bearing External Resistance Treadmill, or the Colbert fitness device, yes the orientation is correct, is speaking with me this afternoon on a Space and Science roundtable at Tel Aviv University and will share his personal experiences on the station.

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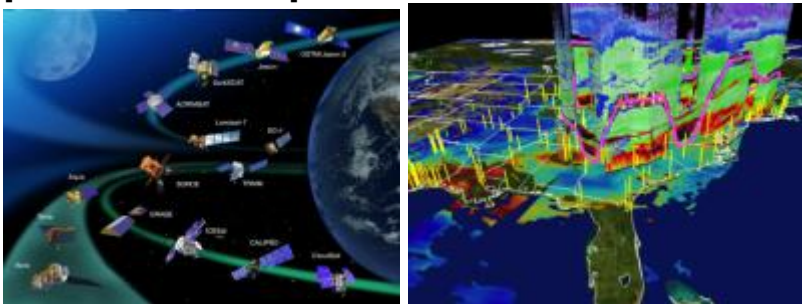




People on Earth will also benefit from our work to establish a vibrant commercial sector that regularly launches to low Earth orbit. I took part in the ribbon cutting for Spaceport America in New Mexico last year. These facilities will soon start launching not only space tourists into orbit, but other missions as well. As I mentioned earlier, in December, our partner SpaceX became the first company to launch a capsule to space, orbit it, and retrieve it intact after re-entry. It was a true piece of space history.

On the horizon, in the next few weeks, we'll open the new rocket integration facility at the Wallops Flight Facility in Virginia, which will initially be used by our commercial partners at Orbital Sciences. Orbital recently test fired the engines for their Taurus II rocket and plans a test launch later this year. Our goal is to be able to give students, researchers, academia, industry, other countries and other users multiple choices for getting their payloads and experiments to space and getting their data back by continuing to expand this critical industry.

[ADVANCE SLIDES]



NASA has a renewed focus on Earth observation, which certainly is critical for all of us who live in climates where we have to endure or enjoy weather. There are many things we have yet to learn and many things we need to understand in better detail to make this data as useful as possible for those of us here on Earth.

As I mentioned earlier, the Glory mission will launch next month, but we're also launching Aquarius in June. It will look at ocean surface salinity as a clue to climate changes. The NPOESS Preparatory Project is scheduled to launch in October. It will collect and distribute remotely-sensed land, ocean, and atmospheric data to the meteorological and global climate change communities. Next year we'll launch a replacement for the Orbiting Carbon Observatory that was lost on launch in 2009. All of these satellites will help close gaps in our knowledge about our current and future Earth.

environment and bring into increasing focus our Earth as a unified system. What could be a more important contribution to society?

[ADVANCE SLIDES]



In Aeronautics, we're putting more resources into cutting edge aeronautics research with increased focus on aviation safety, airspace systems and more environmentally responsive aviation. We'll be working with the U.S. Federal Aviation Administration and international partners to develop the next generation of aviation technologies that will transform our whole flight system -- vehicles, air traffic control, and the system's overall safety, efficiency and environmental impact. As much as people love to watch coverage of our missions, it's our accomplishments here that probably affect people's lives most directly on a day to day basis.

[ADVANCE SLIDES]



International partnerships have always been critical for NASA for an organization born of the "Cold War". We have hundreds of agreements with nations around the world. The United States and Israel alone have partnered on the NASA Lunar Science Institute, an effort to gather data for lunar exploration activities. Israel has 51 schools involved in the GLOBE program. GLOBE is an effort to link school children to scientists. The children collect environmental data, which teachers submit through the Internet to a worldwide database. The database is then available for the students to compare their data to that of other schools, and for scientists to use for research. Our countries have worked together on climate research and we have partnered on a GPS ground station in Israel. There have been many exchanges over the years and we are looking forward to many more in the future.

All of our plans depend upon deepening our existing partnerships and establishing new ones. We intend to collaborate fully in all our endeavors. This conference has been the early catalyst for deepening such partnerships

[ADVANCE SLIDES]



Ilan Ramon, the son of a Holocaust survivor, took mementos of that past with him into space, along with many hopes for the future. We continue to work to assure that future will be bright with the perspectives of people from all nations. The international space station is our toehold for people exploration. We're now entering our second decade with continuous human presence in space. This was the future that Ilan Ramon contributed to. It is a future that we strive to create at NASA. It is our great privilege and honor to do that work every day with Israel and the rest of the international community. Thank you for inviting me. It is a personal pleasure to call you my friends. Shalom.